

Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 3. This sheet, which includes Fig. 3, replaces the original sheet including Fig. 3.

Attachment: Annotated Sheet
Replacement Sheet

REMARKS/ARGUMENTS

In view of the foregoing amendments and the following remarks, the applicants respectfully submit that the pending claims comply with 35 U.S.C. § 112, are not anticipated under 35 U.S.C. § 102, and are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. **If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.**

The applicants will now address each of the issues raised in the outstanding Office Action. Before doing so, however, the applicants introduce some of the advantages of the claimed invention -- advantages not found in the devices of the cited references.

At least some embodiments consistent with the claimed invention employ no extra members dedicated to heat radiation. Thus, a desired heat radiation effect is realized by a combination of parts otherwise found in an electronic camera. Such parts are formed to have heat conduction or radiation functions in addition to their holding functions. Further, at least some embodiments consistent with the claimed invention do not require any part to have a special shape for heat radiation. This is very advantageous, because it puts no serious constraints on the design of the spaces, part shapes, or part positions of the camera.

Rejections under 35 U.S.C. § 112

Claims 3, 4, 11, 12, 18 and 19 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Since these claims have been canceled, this ground of rejection is rendered moot.

Rejections under 35 U.S.C. § 102

Claims 1-6, 9-14 and 17-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese patent publication no. JP 09-065348 ("the Matsunaga patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

First, since claims 2-6, 10-14 and 18-20 have been canceled, this ground of rejection is rendered moot with respect to these claims.

Independent claims 1, 9 and 17, as amended, are not anticipated by the Matsunaga patent at least because the Matsunaga patent does not teach a holding frame structure made of a heat-conducting material and configured **to surround and fix** the image sensing element and the light guiding device, so as to hold the image sensing element and the light guiding device in the electronic camera, **wherein the holding frame structure comprises an intimately contacting member formed of a plate member larger than the image sensing element, made of a heat-conducting material, and intimately contacting with the image sensing element to transfer heat generated by the image sensing element,** and a heat-transfer frame member

made of a heat-conducting material and surrounding the light guiding device, such that the intimately contacting member and the heat-transfer frame member intimately contact with each other to transfer heat generated by the image sensing element through the intimately contacting member to the heat-transfer frame member.

The Matsunaga patent discloses a conventional technique in relation to heat radiation of a CCD. Specifically, a CCD is disposed in contact with a thermally conductive chip 21, from which heat is transferred through a thermally conductive plate 22 and a copper foil heat radiation plate 24 to a camera casing 1. In one embodiment, a CCD is connected to a first thermally conductive member 11 made of a metal, through a thermally conductive adhesive tape 10, a Peltier cooling element 9, and a thermally conductive adhesive tape 10. The first thermally conductive member 11 is fixed with pressure to a second thermally conductive member, which is also fixed with pressure to heat radiation plate 16 connected to a camera casing 1 by screws. As a consequence, heat is transferred from the CCD to the camera casing. However, this disclosure does not teach the above-referenced elements and their relationships. Thus, independent claims 1, 9 and 17, as amended, are not anticipated by the Matsunaga patent for at least this reason.

Rejections under 35 U.S.C. § 103

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being anticipated over Japanese patent publication no. JP 08-009208 ("the Tomita patent") in view of U.S. Patent

No. 6,778,218 ("the Higuchi patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

First, since claims 2-4 have been canceled, this ground of rejection is rendered moot with respect to these claims.

Before addressing at least some of the patentable features of claim 1, the Tomita and Higuchi patents are first introduced.

The Tomita patent discloses a technique for preventing condensation on the lens of a video camera, in which heat generated in a solid image sensing element 3 is transferred through a heat radiation plate 4 and a thermally conductive plate 5 to the lens. It employs extra members dedicated to heat radiation.

The Higuchi patent discloses an electronic imaging device of the single lens reflex type in which an optical system is divided into an imaging path and a finder path by a beam splitter. An aluminum plate or heat radiation plate 21 is disposed to position an image sensing element 26 and to work for heat radiation. Other than the plate 21, however, this reference includes no description about heat radiation.

The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to include a beam splitter from the Higuchi patent in the optical assembly of the Tomita patent. Even assuming, arguendo, that it would have been obvious to provide a beam splitter in the optical assembly of the Tomita patent, such a combination neither teaches, nor suggests, the specific elements and

relationships between the elements recited in claim 1 as amended. For example, the proposed combination neither teaches, nor suggests a holding frame structure made of a heat-conducting material and configured **to surround and fix** the image sensing element and the light guiding device, so as to hold the image sensing element and the light guiding device in the electronic camera, **wherein the holding frame structure comprises an intimately contacting member formed of a plate member larger than the image sensing element, made of a heat-conducting material, and intimately contacting with the image sensing element to transfer heat generated by the image sensing element**, and a heat-transfer frame member made of a heat-conducting material and surrounding the light guiding device, such that the intimately contacting member and the heat-transfer frame member intimately contact with each other to transfer heat generated by the image sensing element through the intimately contacting member to the heat-transfer frame member.

Thus, independent claim 1, as amended, is not rendered obvious by the Tomita and Higuchi patents for at least the foregoing reason.

Claims 1-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,972,265 ("the Tanaka patent") in view of the Tomita patent. The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

First, since claims 2-6 have been canceled, this ground of rejection is rendered moot with respect to these claims.

Before addressing at least some of the patentable features of claim 1, the Tanaka patent is first introduced. The Tanaka patent discloses, in FIG. 1A, an optical system as a whole, which includes a main mirror 3 arranged to guide light transmitted through an imaging lens to an image sensing element and to a finder. However, this reference includes no description about heat radiation. The Examiner relies on the Tomita patent to compensate for this deficiency. Specifically, the Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to have used Tomita cooling structure in the structure of the Tanaka patent.

Even assuming, *arguendo*, that it would have been obvious to combine the Tanaka and Tomita patents as proposed by the Examiner, such a combination neither teaches, nor suggests, the specific elements and relationships between the elements recited in claim 1 as amended. For example, the proposed combination neither teaches, nor suggests a holding frame structure made of a heat-conducting material and configured **to surround and fix** the image sensing element and the light guiding device, so as to hold the image sensing element and the light guiding device in the electronic camera, **wherein the holding frame structure comprises an intimately contacting member formed of a plate member larger than the image sensing element, made of a heat-conducting material, and intimately contacting with the image sensing element to transfer heat generated by the image**

sensing element, and a heat-transfer frame member made of a heat-conducting material and surrounding the light guiding device, such that the intimately contacting member and the heat-transfer frame member intimately contact with each other to transfer heat generated by the image sensing element through the intimately contacting member to the heat-transfer frame member.

Thus, independent claim 1, as amended, is not rendered obvious by the Tanaka and Tomita patents for at least the foregoing reason. Since claim 7 depends from claim 1 and claim 8 depends from claim 7, these claims are similarly not rendered obvious by these references.

Claims 9, 10 and 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanaka patent and Japanese patent publication no. JP 11-341321 ("the Higuchi JP patent"), in view of the Tomita patent. The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

First, since claims 10, 13 and 14 have been canceled, this ground of rejection is rendered moot with respect to these claims.

Before addressing at least some of the patentable features of claim 9, the Higuchi JP patent is first introduced. The Higuchi JP patent discloses a technique in relation to heat radiation of an imaging device, in which a resilient member 8 intimately contacting with an image sensing element is extended and contacts a casing 2. This reference includes a description in that a heat radiation effect can be improved without increasing the number of parts. However, the extended portion of the

resilient member 8 is provided only for heat radiation, and requires the shape of the member 8 to be complex and large, as well as its own occupancy space. This space is inevitably close to the image sensing element, and thus brings about serious constraints on the shape and wiring position of a circuit board. This is a disadvantage.

The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the Higuchi JP, Tomita, and Tanaka patents. Even assuming, *arguendo*, that it would have been obvious to combine these patents as proposed by the Examiner, such a combination neither teaches, nor suggests, the specific elements and relationships between the elements recited in claim 9 as amended. For example, the proposed combination neither teaches, nor suggests a holding frame structure made of a heat-conducting material and configured **to surround and fix** the image sensing element and the light guiding device, so as to hold the image sensing element and the light guiding device in the electronic camera, **wherein the holding frame structure comprises an intimately contacting member formed of a plate member larger than the image sensing element, made of a heat-conducting material, and intimately contacting with the image sensing element to transfer heat generated by the image sensing element**, and a heat-transfer frame member made of a heat-conducting material and surrounding the light guiding device, such that the intimately contacting member and the heat-transfer frame member intimately contact with each other to transfer heat generated by the image sensing element through the intimately contacting member to the heat-transfer frame member.

Thus, independent claim 9, as amended, is not rendered obvious by the Higuchi JP, Tomita, and Tanaka patents for at least the foregoing reason. Since claim 15 depends from claim 9, it is similarly not rendered obvious by these references.

Claims 17, 20 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanaka patent in view of the Higuchi JP patent. The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

First, since claim 20 has been canceled, this ground of rejection is rendered moot with respect to this claim.

The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the Higuchi JP patent and the Tanaka patent. Even assuming, arguendo, that it would have been obvious to combine the Tanaka and Tomita patents as proposed by the Examiner, such a combination neither teaches, nor suggests, the specific elements and relationships between the elements recited in claim 17 as amended. For example, the proposed combination neither teaches, nor suggests a holding frame structure made of a heat-conducting material and configured **to surround and fix** the image sensing element and the light guiding device, so as to hold the image sensing element and the light guiding device in the electronic camera, **wherein the holding frame structure comprises an intimately contacting member formed of a plate member larger than the image sensing element, made of a heat-conducting material, and intimately contacting with the image**

sensing element to transfer heat generated by the image sensing element, and a heat-transfer frame member made of a heat-conducting material and surrounding the light guiding device, such that the intimately contacting member and the heat-transfer frame member intimately contact with each other to transfer heat generated by the image sensing element through the intimately contacting member to the heat-transfer frame member.

Thus, independent claim 17, as amended, is not rendered obvious by the Higuchi JP and Tanaka patents for at least the foregoing reason. Since claim 21 depends from claim 17, it is similarly not rendered obvious by these references.

New claims

New claims 22, 24 and 26 depend from claim 1, 9 and 17 respectively. These claims further recite a second plate member, made of a heat-conducting material, wherein the second plate member is directly and intimately connected to both a holding frame structure and a lens casing and/or an outer casing such that heat from the heat-transfer frame member is conducted, via the second plate member, to the heat-radiating portion of the outer casing and/or the heat-radiation portion of the lens casing. New claims 23, 25 and 27 depend from new claims 22, 24 and 26, respectively, and further define the invention. These claims are supported, for example, by element 71 of FIG. 2 and corresponding description.

Amendments to the Drawings

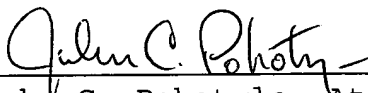
Changes to the drawings have been proposed, to correct a minor numbering error.

Conclusion

In view of the foregoing amendments and remarks, the applicants respectfully submit that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue.

Respectfully submitted,


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CERTIFICATE OF MAILING under 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being deposited on **September 8, 2005** with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.



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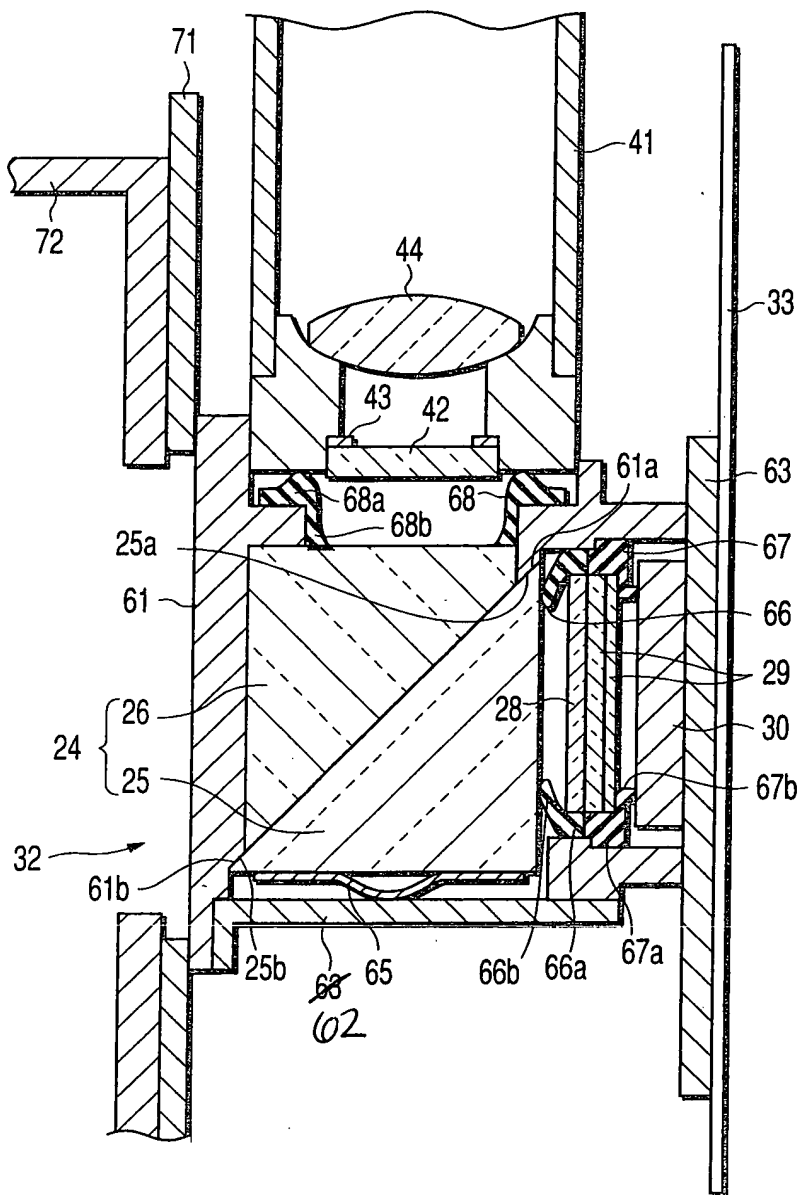


FIG. 3